

CURRICULUM

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Radio and Television Repairer (RTR)



**Council for Technical Education and Vocational Training
Curriculum Development Division**

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Table of contents

| | |
|--|----|
| Introduction..... | 3 |
| Aim | 3 |
| Objectives | 3 |
| Course description | 3 |
| Course structure | 4 |
| Duration | 5 |
| Target group..... | 5 |
| Group size | 5 |
| Pattern of attendance..... | 5 |
| Focus of curriculum | 5 |
| Entry criteria | 5 |
| Follow up suggestions..... | 5 |
| Certificate..... | 5 |
| Grading | 5 |
| Students evaluation | 6 |
| Trainers qualification | 6 |
| Trainer-trainees ratio..... | 6 |
| Suggestions for instructor | 6 |
| Suggestions for instruction | 6 |
| Suggestion for the performance evaluation of the trainees..... | 7 |
| Suggestion for skill training..... | 7 |
| Other suggestions..... | 7 |
| List of modules and sub modules..... | 8 |
| Details of modules and sub modules | 9 |
| Module: 1: Electricity | 9 |
| Sub module:1: Electrical units | 9 |
| Sub module: 2: Power supply | 12 |
| Sub module: 3: Volt guard..... | 14 |
| Sub module: 4: Stabilizer..... | 15 |
| Module: 2: Electronics | 16 |
| Sub module: 1: Electronic components | 16 |
| Sub module: 2: Digital circuit system..... | 17 |
| Module: 3: Radio Receiver | 19 |
| Module:4:Cassette & CD player..... | 21 |
| Sub module:1: Cassette player..... | 21 |
| Sub module:2: CD player..... | 23 |
| Module:5: Television | 24 |
| Sub module:1: Black and White Television | 24 |
| Sub module:2: Color Television | 27 |
| Module:6: Workshop Management | 30 |
| Module :7 : Common module | 35 |
| Sub module:1:Applied math | 35 |
| Sub module: 2: Occupational health and safety..... | 37 |
| Sub module: 3: First aid..... | 39 |
| Sub module:4: HIV/AIDS..... | 41 |
| Sub module: 5 : Communication | 42 |
| Sub module: 6 : Small business management..... | 46 |
| List of tools, materials and equipment..... | 50 |
| Reading materials..... | 50 |
| Facilities..... | 50 |

Introduction

This curriculum for “**Radio and Television Repairer**” is designed to produce lower level technical workforce equipped with knowledge and skills related to **radio and television repairing**. It makes the trainees able to get opportunities for wage and self-employment in the related occupational field.

Aim

To produce lower level **electronics** workers (**Radio and Television Repairer**) able to provide tea cultivation/plantation services in the community being an entrepreneur/employee/self employed.

Objectives

After the completion of this training program, the trainees will be able:

- To be familiar with electricity/electrical units/power supply
- To be familiar with the operation of volt guard/stabilizer
- To be familiar with electronics/ electronic /components/ digital circuit system
- To repair/maintain volt guard
- To repair/maintain stabilizer
- To repair/maintain radio receiver
- To repair/maintain cassette player
- To repair/maintain CD player
- To repair/maintain B/W T V
- To repair/maintain color T V

Course description

This curriculum provides skills & knowledge necessary for **Radio and Television Repairer**. There will be both demonstration by instructors/trainers and opportunity by trainees to perform skills/tasks specified in this curriculum. Trainees will practice & learn skills using typical tools, materials, equipment & machines necessary for the program.

After successful completion of this program the trainees will be equipped with the knowledge and skills related **to repairing and maintenance of power supply unit, volt guard, stabilizer, radio receiver, cassette player, CD player, B/W T V, and color T V.**

**Course structure
(Radio & TV repairer)**

| S.N | Modules/sub modules | Nature | Time (hrs.) | | | Marks | | |
|------------------------------------|--------------------------------|--------------|-------------|------------|------------|-----------|------------|------------|
| | | | Th. | Pr. | Tot. | Th. | Pr. | Tot. |
| 1. Electricity | | T + P | 22 | 44 | 66 | 10 | 40 | 50 |
| 1. | Electrical units | T + P | 7 | 14 | 21 | | | |
| 2. | Power supply | T + P | 7 | 14 | 21 | | | |
| 3. | Volt guard | T + P | 4 | 8 | 12 | | | |
| 4. | Stabilizer | T + P | 4 | 8 | 12 | | | |
| 2. Electronics | | T + P | 9 | 18 | 27 | 5 | 20 | 25 |
| 1. | Electronic components | T + P | 4 | 8 | 12 | | | |
| 2. | Digital circuit system | T + P | 5 | 10 | 15 | | | |
| 3. Radio receiver-9 | | T + P | 5 | 48 | 53 | 8 | 32 | 40 |
| 4. Cassette & CD player | | T + P | 8 | 76 | 84 | 15 | 60 | 75 |
| 1. | Cassette player | T + P | 4 | 40 | 44 | | | |
| 2. | CD player | T + P | 4 | 36 | 40 | | | |
| 5. Television | | T + P | 21 | 128 | 149 | 20 | 80 | 100 |
| 1. | B/W T V | T + P | 10 | 40 | 50 | | | |
| 2. | Color T V | T + P | 11 | 88 | 99 | | | |
| 6. Workshop management | | T + P | 4 | 7 | 11 | 2 | 8 | 10 |
| Specialized modules total: | | | 69 | 321 | 390 | 60 | 240 | 300 |
| 7. Common module | | T + P | 14 | 56 | 70 | 10 | 40 | 50 |
| 1. | Applied math | T + P | 4 | 16 | 20 | | | |
| 2. | Occupational health and safety | T + P | 2 | 8 | 10 | | | |
| 3. | First aid | T + P | 1 | 4 | 5 | | | |
| 4. | HIV / AIDS | T + P | 1 | 4 | 5 | | | |
| 5. | Communication | T + P | 2 | 8 | 10 | | | |
| 6. | Small enterprise development | T + P | 4 | 16 | 20 | | | |
| All total: | | | 83 | 377 | 460 | 70 | 280 | 350 |

Duration

The total duration of the course will be of 390 hours (three months) of specialized modules plus 70 hours of common module.

Target group

All interested individuals in the field of electronics with educational prerequisite of class eight pass.

Group size

Maximum of thirty

Medium of instruction

Nepali or English or both

Pattern of attendance

- 80% attendance in theory
- 90% in practical/ performance

Focus of curriculum

This curriculum emphasizes on competency /performance. 80% time is allocated for performance and only 20% for related technical knowledge. So the focus will be on performance of the specified competencies in the curriculum

Entry criteria

- Minimum of eight class pass or equivalent
- Minimum of 14 years of age
- Should pass entrance examination

Follow up suggestions

In order to assess the success of this program and collect feedbacks/ inputs for the revision of the curriculum a schedule of follow up is suggested as follows:

- First follow up: - Six months after the completion of the program
- Second follow up: - Six months after the completion of the first follow up
- Follow up cycle: - In a cycle of one year after the completion of the second follow up for five years

Certificate

The related training institute will provide the certificate of "Radio and Television Repairer ". Again, individuals who complete module (s) of the curriculum will receive a certificate of completion of the particular module(s).

Grading

- Distinction: passed with 80% or above
- First division: passed with 75% or above
- Second division: passed with 65% or above
- Third division: passed with 60% or above

Students evaluation

- Continuous evaluation of the trainees' performance is to be done by the related instructor/ trainer to ensure the proficiency over each competency under each of the sub-module.
- Related technical knowledge learnt by trainees will be evaluated through written or oral tests.
- Trainees must secure minimum marks of 60% in an average of both theory and practical evaluations.
- There will be three internal evaluations and one final evaluation in each module.
- The entrance test will be conducted by the concerned training institute

Trainers qualification

- I. Sc. Ag or equivalent in related field
- Good communicative and instructional skills
- Experience in related field

Trainer-trainees ratio

- 1:10 for practical classes
- For theory, as per the class room situation

Suggestions for instructor

Suggestions for instruction

1. **Select objectives**
 - Write objectives of cognitive domain
 - Write objectives of psychomotor domain
 - Write objectives of affective domain
2. **Select subject matter**
 - Study subject matter in detail
 - Select content related to cognitive domain
 - Select content related to psychomotor domain
 - Select content related to affective domain
3. **Select instructional methods**
 - Teacher centered methods: like lecture, demonstration, questions answer inquiry, induction and deduction methods.
 - Student initiated methods like experimental, field trip/excursion, discovery, exploration, problem solving, and survey methods.
 - Interaction methods like discussion, group/team teaching, microteaching and exhibition.
 - Dramatic methods like role play and dramatization
4. Select Instructional method (s) on the basis of objectives of lesson plans and KAS domains
5. Select appropriate educational materials and apply at right Time and place.
6. Evaluate the trainees applying various tools to correspond the KAS domains
7. Make plans for classroom / field work / workshop organization and management.
8. Coordinate among objectives, subject matter and instructional methods.
9. Prepare lesson plan for Theory and Practical classes.
10. Deliver /conduct instruction / program
11. Evaluate instruction/ program

Suggestion for the performance evaluation of the trainees

1. Perform task analysis
2. Develop a detail task performance checklist
3. Perform continuous evaluation of the trainees by applying the performance checklist.

Suggestion for skill training

Demonstrate performance

1. Demonstrate task performance in normal speed
2. Demonstrate slowly with verbal description of each and every step in the sequence of activity of the task performance using question and answer techniques.
3. Repeat 2 for the clarification on trainees demand if necessary
4. Perform fast demonstration of the task.

Provide trainees the opportunities to practice the task performance demonstration

1. Provide trainees to have guided practice
2. Create environment for practicing the demonstrated task performance
3. Guide the trainees in each and every step of task performance
4. Provide trainees to repeat and repeat as per the need to be proficient on the given task performance
5. Switch to another task demonstration if and only trainees developed proficiency in the task performance.

Other suggestions

1. Apply principles of skill training
2. Allocate 20% Time for Theory classes and 80% Time for task performance while delivering instructions
3. Apply principles of adult learning
4. Apply principles of intrinsic motivation
5. Facilitate maximum trainees involvement in learning and task performance activities
6. Instruct the trainees on the basis of their existing level of knowledge, skills and attitude.

List of modules and sub modules

Module: 1: Electricity

Sub module: 1: Electrical units

Sub module: 2: Power supply

Sub module: 3: Volt guard

Sub module: 4: Stabilizer

Module: 1: Electronics

Sub module: 1: Electronic components

Sub module: 2: Digital circuit system

Module: 1: Radio receiver

Module: 1: Cassette & CD player

Sub module: 1: Cassette player

Sub module: 2: CD player

Module: 1: Television

Sub module: 1: B/W TV

Sub module: 2: Color TV

Details of modules and sub modules

| Module: 1: Electricity | | | | | | |
|---|--|---|----|-----------|-----|--|
| Description: It consists of knowledge and skills related to electricity, power supply, volt guard, and stabilizer necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | |
| Objectives: | | | | | | |
| <ul style="list-style-type: none"> • To be familiar with skills and knowledge of electricity applicable to repair/maintain/operate radio and television. • To be familiar with skills and knowledge of power supply applicable to repair/maintain/operate radio and television. • To be familiar with skills and knowledge of operation/handling of volt guard • To be familiar with skills and knowledge of operation/handling of stabilizer | | | | | | |
| Sub modules: | | | | | | |
| <ol style="list-style-type: none"> 1. Electrical units 2. Power supply 3. Volt guard 4. Stabilizer | | | | | | |
| Sub module:1: Electrical units | | | | | | |
| Description: It consists of knowledge and skills related to electrical units and their measurement necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | |
| Objectives: | | | | | | |
| <ul style="list-style-type: none"> • To be familiar with skills and knowledge of electricity applicable to repair/maintain/operate radio and television. • To be familiar with electrical units • To measure electrical units | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | |
| | | Th(7)+Pr(14)=Tot(21) | | Time(hrs) | | |
| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Be familiar with basic knowledge of electricity applicable to repair/maintain/operate radio and television</u> <ul style="list-style-type: none"> • Receive instruction • Collect related reading materials • Study the reading materials • Analyze the reading materials • Define electricity • Make list of electrical terms necessary to be known for the operation of radio and TV operation • Define the electrical terms • Follow precautions | <u>Basic Electricity:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Definition of electricity ❖ Making list of electrical terms necessary to be known for the operation of radio and TV operation ❖ Definition of the electrical terms necessary to be known for the operation of radio and TV operation listed ❖ Basic principles and procedures of electricity applicable to repair/maintain/operate radio and television ❖ Following precautions | 1 | 2 | 3 | |

| | | | | | | |
|----|--|--|---|---|---|--|
| | <ul style="list-style-type: none"> • Keep records | <ul style="list-style-type: none"> ❖ Keeping records | | | | |
| 2. | <u>Be familiar with electrical units</u> <ul style="list-style-type: none"> • Receive instruction • Collect related reading materials • Study the reading materials • Analyze the reading materials • Define electrical unit • Make list of electrical units • Define the electrical units • Follow precautions • Keep records | <u>Electrical units :</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Defining electrical unit ❖ Making list of electrical units ❖ Defining the electrical units ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 3. | <u>Be familiar with measuring electrical units</u> <ul style="list-style-type: none"> • Receive instruction • Collect related reading materials • Study the reading materials • Analyze the reading materials • State the meaning of measuring electrical units • State principles and procedures for measuring electrical units • Follow precautions • Keep records | <u>Measuring electrical units:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Meaning of measuring electrical units ❖ Principles and procedures for measuring electrical units ❖ Follow precautions ❖ Keep records | 1 | 2 | 3 | |
| 4. | <u>Measure resistance</u> <ul style="list-style-type: none"> • Receive instruction • Select measuring tools • Handle measuring tools • Select loads • Connect meter • Read Ohm meter • Measure Voltage • Measure Current • Measure resistance • Read resistance • Record the result • Follow precautions • Keep records | <u>Measuring resistance:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Concept of electrical current ❖ Concept of Voltage ❖ Resistance ❖ Concept of load ❖ Concept and handling of resistance measuring tools ❖ Selecting resistance measuring tools ❖ Selecting loads ❖ Connecting meter ❖ Reading Ohm meter ❖ Measuring voltage ❖ Measuring current ❖ Measuring resistance ❖ Reading resistance ❖ Recording the result ❖ Following precautions | 1 | 2 | 3 | |

| | | | | | | |
|----|--|--|---|---|---|--|
| | | ❖ Keeping records | | | | |
| 5. | <u>Measure Voltage</u> <ul style="list-style-type: none"> • Receive instruction • Select measuring tools • Select loads • Connect Volt meter • Read Volt meter • Record the result • Follow precautions • Keep records | <u>Measuring voltage:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Concept of electrical current, voltage, resistance, and voltage measuring tools ❖ Selecting voltage measuring tools ❖ Handling of voltage measuring tools ❖ Selecting loads ❖ Connecting Volt meter ❖ Reading Volt meter ❖ Recording the result ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 6. | <u>Measure Current.</u> <ul style="list-style-type: none"> • Receive instruction • Select measuring tools • Select loads • Connect meter • Read Ampere meter • Record the result • Follow precautions • Keep records | <u>Measuring current:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Electrical current ❖ Voltage ❖ Resistance ❖ Handling of tools ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 7. | <u>Repair/maintain meters</u> <ul style="list-style-type: none"> • Receive instruction • Select tools • Carry out checking of the meters • Carry out troubleshooting • Maintain/repair/replace the faulty parts system • Maintain/repair/replace Ohm meter • Maintain/repair/replace Volt meter • Maintain/repair/replace Ampere meter • Follow precautions • Keep records | <u>Repairing/maintaining meters:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Concept of repairing, replacing and maintenance ❖ Tools for repairing, replacing and maintenance of different kinds of meters(Volt meter, Ampere meter, Ohm meter) ❖ Selecting tools ❖ Carrying out checking of the meters ❖ Carrying out troubleshooting ❖ Maintaining/repairing/replacing the faulty parts system ❖ Maintaining/repairing/replacing Ohm meter ❖ Maintaining/repairing/replacing Volt meter ❖ Maintaining/repairing/replacing Ampere meter | 1 | 2 | 3 | |

| | | | | | | | |
|---|---|--|--|-----------|----|-----|--|
| | | ❖ Following precautions ❖ Keeping records | | | | | |
| | | | Total: | 7 | 14 | 21 | |
| Sub module: 2: Power supply | | | | | | | |
| Description: It consists of knowledge and skills related to power supply necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | | |
| Objectives: | | | | | | | |
| <ul style="list-style-type: none"> • To be familiar with skills and knowledge of electrical power supply applicable to repair/maintain/operate radio and television. • To check electrical power supply unit • To troubleshoot electrical power supply unit • To repair/maintain electrical power supply unit | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | | Th(7)+Pr(14)=Tot(21) | Time(hrs) | | | |
| SN | Tasks/steps | | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Be familiar with Power Supply</u> <ul style="list-style-type: none"> • Receive instruction • Obtain related reading materials • Gather information related to the power supply applicable for operating and repairing radio and TV • Study the related reading materials • Analyze the related reading materials • Be familiar with Power Supply • Follow precautions • Keep records | | <u>Power Supply:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Related reading materials ❖ Gathering information related to the power supply applicable for operating and repairing radio and TV ❖ Study of the related reading materials ❖ Analysis of the related reading materials ❖ Being familiar with Power Supply ❖ Follow precautions ❖ Keep records | 1 | 2 | 3 | |
| 2. | <u>Check Power Supply unit</u> <ul style="list-style-type: none"> • Receive instruction • Select tools. • Open Power supply Unit • Measure the Input & out put voltages • Measure the transformer • Measure the diode & capacitor • Measure the switches • Follow precautions • Keep records | | <u>Checking Power Supply unit:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Checking power supply ❖ Handling the multi meter ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 3. | <u>Check Regulated Power supply</u> <ul style="list-style-type: none"> • Receive instruction • Check the input & output voltage | | <u>Checking Regulated Power supply</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications | 1 | 2 | 3 | |

| | | | | | | |
|----|--|---|---|---|---|--|
| | <ul style="list-style-type: none"> • Check the transformer & switches • Check Diode, Transistor & I.C • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Handling multi meter ❖ Electronic circuit ❖ Following precautions ❖ Keeping records | | | | |
| 4. | <u>Troubleshoot / repair Power supply.</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot for Power supply. • Repair/maintain Power supply. • Follow precautions • Keep records | <u>Troubleshooting / repairing Power supply:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting for Power supply. ❖ Repairing/maintaining Power supply ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 5. | <u>Check out put voltage.</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Connect power cord at 220v plug. • Select appropriate range of multi meter. • Read value. • Follow precautions • Keep records | <u>Checking out put voltage.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ A.C, D.C. ❖ Components. ❖ Handling multi meter ❖ Reading circuit diagrams. ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 6. | <u>Check all the components whether they are working properly or not.</u> <ul style="list-style-type: none"> • Receive instruction • Check Transformer • Check rectifier and filter circuit. • Check regulated circuit. • Check connection. • Follow precautions • Keep records | <u>Checking all the components whether they are working properly or not</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ A.C, DC. ❖ Components. ❖ Handling multi meter. ❖ Reading circuit diagrams. ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 7. | <u>Replace faulty Components.</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Disassemble the Power supply unit. • Replace faulty components • Recheck it. • Reassemble it • Follow precautions • Keep records | <u>Replacing faulty Components</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ A.C, D.C. ❖ Components. ❖ Handling multi meter. ❖ Reading circuit diagrams. ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |

| | | | | | | |
|--|---|--|---|-----------|----|-----|
| | | | | | | |
| | | | Total: | 7 | 14 | 21 |
| Sub module: 3: Volt guard | | | | | | |
| Description: It consists of knowledge and skills related to volt guard and its maintenance necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | |
| Objectives: | | | | | | |
| <ul style="list-style-type: none"> • To be familiar with skills and knowledge of operating volt guard • To handle volt guard • To check volt guard • To troubleshoot volt guard • To repair/maintain volt guard | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | |
| | | | Th(4)+Pr(8)=Tot(12) | Time(hrs) | | |
| SN | Tasks/steps | | Related technical knowledge | Th | Pr | Tot |
| 1. | <u>Handle Volt guard</u> <ul style="list-style-type: none"> • Receive instruction • Identify Volt guard • Enlist functions of Volt guard • Identify parts of Volt guard • Enlist functions of each part of Volt guard • Operate Volt guard • Handle Volt guard • Follow precautions • Keep records | | <u>Volt guard:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Identifying Volt guard ❖ Enlisting functions of Volt guard ❖ Identifying parts of Volt guard ❖ Enlisting functions of each part of Volt guard ❖ Operating Volt guard ❖ Handling Volt guard Following precautions ❖ Keeping records | 1 | 2 | 3 |
| 2. | <u>Check volt guard.</u> <ul style="list-style-type: none"> • Receive instruction • Select necessary tools. • Check Input & Output voltage • Check transformer • Check components • Check Relay Switch • Follow precautions • Keep records | | <u>Checking volt guard.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Handling the Multi meter. ❖ Electronics components ❖ Relay switch ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 |
| 3. | <u>Troubleshoot/ repair Volt guard.</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot for Volt guard. • Repair / maintain Volt guard. • Follow precautions • Keep records | | <u>Troubleshooting/ repairing Volt guard.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting Volt guard. ❖ Repairing / maintaining Volt guard. ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 |

| | | | | | | |
|--|---|--|------------------------|----|-----------|--|
| 4. | <u>Check output voltage / components of Volt guard.</u> <ul style="list-style-type: none"> • Receive instruction • Check Output Voltage • Check proper voltage • Check components • Check relay switch • Check out put socket. • Follow precautions • Keep records | <u>Checking output voltage / components of Volt guard.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Working principle of Volt guard. ❖ Checking the voltages ❖ Relay Switch. ❖ Reading diagram ❖ Handling tools ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| Total: | | | 4 | 8 | 12 | |
| Sub module: 4: Stabilizer | | | | | | |
| Description: It consists of knowledge and skills related to stabilizer and its maintenance necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with skills and knowledge of operating/handling stabilizer necessary to maintain smooth operation of radio; cassette & CD players, and televisions • To check stabilizer • To troubleshoot stabilizer • To repair/maintain stabilizer | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | |
| | | | Th(4)+Pr(8)=Tot(12) | | Time(hrs) | |
| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Handle Stabilizer</u> <ul style="list-style-type: none"> • Receive instruction • Identify stabilizer • Enlist functions of stabilizer • Identify parts of stabilizer • Enlist functions of each part of stabilizer • Operate stabilizer • Handle stabilizer • Follow precautions • Keep records | <u>Stabilizer:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Identifying stabilizer ❖ Enlisting functions of stabilizer ❖ Identifying parts of stabilizer ❖ Enlisting functions of each part of stabilizer ❖ Operating stabilizer ❖ Handling stabilizer ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 2. | <u>Check Stabilizer</u> <ul style="list-style-type: none"> • Receive instruction • Select necessary tools. • Check Input & Output voltage • Check transformer • Check components | <u>Checking Stabilizer</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Handling of the Multi meter ❖ Electronics components ❖ Relay switch ❖ Following precautions | 1 | 2 | 3 | |

| | | | | | | | |
|---|---|---|------------------------|-----------|---|----|--|
| | <ul style="list-style-type: none"> • Check Relay Switch • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Keeping records | | | | | |
| 3. | <u>Troubleshoot/repair Stabilizer.</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot Stabilizer. • Repair / maintain Stabilizer • Follow precautions • Keep records | <u>Troubleshooting /repairing Stabilizer:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting Stabilizer ❖ Repairing / maintaining Stabilizer ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | | |
| 4. | <u>Check output voltage / relay switch / components of Stabilizer.</u> <ul style="list-style-type: none"> • Receive instruction • Check Output Voltage in output socket. • Check Relay switch and output socket. • Check proper voltage on the circuit board. • Check components • Follow precautions • Keep records | <u>Checking output voltage / relay switch / components of Stabilizer.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Function of Stabilizer. ❖ Checking components. ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | | |
| | | | Total: | 4 | 8 | 12 | |
| Module: 2: Electronics | | | | | | | |
| Description: It consists of knowledge and skills related to electronics, electronic components and digital circuit system. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with electronic components • To be familiar with digital circuit system. | | | | | | | |
| Sub modules: <ol style="list-style-type: none"> 1. Electronic components 2. Digital circuit system | | | | | | | |
| Sub module: 1: Electronic components | | | | | | | |
| Description: It consists of knowledge and skills related to electronics and electronic components necessary to maintain smooth operation of radio; cassette & CD players, and televisions. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with electronic components • To check electronic components | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | | Th(4)+Pr(8)=Tot(12) | Time(hrs) | | | |

| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot |
|--|---|--|-------------------------|----|-----------|
| 1. | <u>Check Components</u> <ul style="list-style-type: none"> • Receive instruction • Select coil • Select Capacitor • Select Resistor • Select Transformer • Select Multi meter. • Choose appropriate range. • Check the components carefully. • Read Multi meter • Note the result • Follow precautions • Keep records | <u>Checking Components</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Checking components ❖ Handling multi meter ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 |
| 2. | <u>Troubleshoot in electronic components</u> <ul style="list-style-type: none"> • Receive instruction • Identify electronic components • Troubleshoot in electronic components • Note troubleshooting results • Follow precautions • Keep records | <u>Troubleshooting in electronic components:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Identifying electronic components ❖ Troubleshooting in electronic components ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 |
| 3. | <u>Maintain/repair/replace electronic components</u> <ul style="list-style-type: none"> • Receive instruction • Obtain troubleshooting results • Maintain/repair/replace electronic components • Follow precautions • Keep records | <u>Maintaining/repairing/replacing electronic components:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Maintaining/repairing/replacing electronic components: ❖ Following precautions ❖ Keeping records | 2 | 4 | 6 |
| Total: | | | 4 | 8 | 12 |
| Sub module: 2: Digital circuit system | | | | | |
| Description: It consists of knowledge and skills related to digital circuit system. | | | | | |
| Objectives: | | | | | |
| <ul style="list-style-type: none"> • To be familiar with digital electronics • To be familiar with digital circuit system • To check digital circuit system | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | |
| | | | Th(5)+Pr(10)=Tot(15) | | Time(hrs) |

| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot | |
|----|---|--|----|----|-----|--|
| 1. | <u>Be familiar with digital electronics</u> <ul style="list-style-type: none"> • Receive instruction • Obtain related reading materials • Study the related reading • Analyze the related reading • Be familiar with digital electronics • Follow precautions • Keep records | <u>Digital electronics</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications of digital electronics ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 2. | <u>Be familiar with digital Circuit System</u> <ul style="list-style-type: none"> • Receive instruction • Obtain related reading materials • Study the related reading • Analyze the related reading • Be familiar with digital Circuit System • Follow precautions • Keep records | <u>Digital Circuit System</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications of digital Circuit System ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 3. | <u>Check Digital Circuit System</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Select necessary components. • Assemble the circuits. • Check the Digital Circuit system. • Follow precautions • Keep records | <u>Checking Digital Circuit System</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Digital system ❖ Tools ❖ Microprocessor ❖ Digital circuit ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |
| 4. | <u>Troubleshoot in Digital Circuit system.</u> <ul style="list-style-type: none"> • Receive instruction • Prepare for troubleshooting in digital circuit system • Troubleshoot in Digital Circuit system. • Note troubleshooting results • Follow precautions • Keep records | <u>Troubleshooting in Digital Circuit system</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Preparing for troubleshooting in digital circuit system ❖ Troubleshooting in Digital Circuit system. ❖ Noting troubleshooting results ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | |

| | | | | | | | |
|---|---|---|-----------|----|-----|----|--|
| 5. | <u>Maintain Digital Circuit system.</u> <ul style="list-style-type: none"> • Receive instruction • Prepare for maintaining Digital Circuit system. • Maintain Digital Circuit system • Follow precautions • Keep records | <u>Maintaining Digital Circuit system</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Preparing for maintaining Digital Circuit system. ❖ Maintaining Digital Circuit system ❖ Following precautions ❖ Keeping records | 1 | 2 | 3 | | |
| | | | Total: | 5 | 10 | 15 | |
| Module: 3: Radio Receiver | | | | | | | |
| Description: It consists of knowledge and skills related to repairing and maintaining radio receiver. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with radio receiver • To check radio receiver • To repair / maintain radio receiver | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | Th(5)+Pr(48)=Tot(53) | Time(hrs) | | | | |
| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot | | |
| 1. | <u>Check Audio Amplifier.</u> <ul style="list-style-type: none"> • Receive instruction • Select Tools • Dismount the Radio receiver. • Locate the sections. • Check voltage. • Check components • Follow precautions • Keep records | <u>Checking Audio Amplifier.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Audio System ❖ Components ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | 0.6 | 5 | 5.6 | | |
| 2. | <u>Check Detector & IF Amp</u> <ul style="list-style-type: none"> • Receive instruction • Select necessary tools • Check IF signal • Check detector signal • Check voltage • Check components • Follow precautions • Keep records | <u>Checking Detector & IF Amp</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Radio receiving system ❖ Multimeter ❖ Handling the oscilloscope ❖ Precautions to be taken ❖ Keeping records | 0.5 | 5 | 5.5 | | |
| 3. | <u>Check Converter & L-C Tuned Circuit</u> <ul style="list-style-type: none"> • Receive instruction • Select necessary tools. • Check R.F. Signal • Check Components | <u>Checking Converter & L-C Tuned Circuit</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Radio receiving System | 0.5 | 5 | 5.5 | | |

| | | | | | | |
|----|---|---|-----|---|-----|--|
| | <ul style="list-style-type: none"> • Check Voltage • Check Instruments • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Radio alignment system ❖ Tools (handling of oscilloscope & signal generator) ❖ Handling of multi meter ❖ Precautions to be taken ❖ Keeping records | | | | |
| 4. | <u>Troubleshoot / repair Radio Receiver (AF Amplifier)</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot Radio Receiver (AF Amplifier) • Repair / maintain Radio Receiver (AF Amplifier) • Follow precautions • Keep records | <u>Troubleshooting / repairing Radio Receiver (AF Amplifier)</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting Radio Receiver (AF Amplifier) ❖ Repairing / maintaining Radio Receiver (AF Amplifier) ❖ Precautions to be taken ❖ Keeping records | 0.6 | 6 | 6.6 | |
| 5. | <u>Check Proper voltages, components and audio signal.</u> <ul style="list-style-type: none"> • Receive instruction • Check speaker. • Check Audio Signals. • Check proper voltages. • Check components • Follow precautions • Keep records | <u>Checking Proper voltages, components and audio signal</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Dismounting the radio receiver. ❖ Locate the AF amp. ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | 0.5 | 5 | 5.5 | |
| 6. | <u>Troubleshoot / repair Radio Receiver (Converter and LC tuned circuit)</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot Radio Receiver (Converter and LC tuned circuit) • Repair / maintain Radio Receiver (Converter and LC tuned circuit) • Follow precautions • Keep records | <u>Troubleshooting / repairing Radio Receiver (Converter and LC tuned circuit)</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting Radio Receiver (Converter and LC tuned circuit) ❖ Repairing / maintaining Radio Receiver (Converter and LC tuned circuit) ❖ Precautions to be taken ❖ Keeping records | 0.6 | 6 | 6.6 | |
| 7. | <u>Check Converter and LC tuned circuit to determine whether they are working properly or not.</u> <ul style="list-style-type: none"> • Receive instruction • Check converter section • Check LC tuned section. | <u>Checking Converter and LC tuned circuit to determine whether they are working properly or not.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Dismounting the radio receiver. | 0.5 | 5 | 5.5 | |

| | | | | | | | |
|---|---|---|--------|---|-----|----|--|
| | <ul style="list-style-type: none"> • Check proper voltage • Check components • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Locate IF and Converter Section. ❖ IF Signal. ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | | | | | |
| 8. | <u>Troubleshoot / repair Radio Receiver (detector and IF Amplifier)</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot Radio Receiver (detector and IF Amplifier) • Repair / maintain Radio Receiver (detector and IF Amplifier) • Follow precautions • Keep records | <u>Troubleshooting / repairing Radio Receiver (detector and IF Amplifier)</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting Radio Receiver(detector and IF Amplifier) ❖ Repairing / maintaining Radio Receiver(detector and IF Amplifier) ❖ Precautions to be taken ❖ Keeping records | 0.6 | 6 | 6.6 | | |
| 9. | <u>Check/maintain detector section /Signal of IF</u> <ul style="list-style-type: none"> • Receive instruction • Check detector section • Check IF Amp. • Check IF Signal • Check proper voltage • Check components • Maintain detector section /Signal of IF • Follow precautions • Keep records | <u>Checking / maintaining detector section /Signal of IF</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Dismounting the radio receiver. ❖ IF Amp. And Detector. ❖ Locate the section ❖ Checking the voltages ❖ Reading diagram ❖ Maintaining detector section /Signal of IF ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | 0.6 | 5 | 5.6 | | |
| | | | Total: | 5 | 48 | 53 | |
| Module:4:Cassette & CD player | | | | | | | |
| Description: It consists of knowledge and skills related to repairing and maintaining cassette & CD players. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with skills and knowledge necessary to repair/maintain/operate cassette. • To be familiar with skills and knowledge necessary to repair/maintain/operate CD players. | | | | | | | |
| Sub modules: <ol style="list-style-type: none"> 1. Cassette player 2. CD player | | | | | | | |
| Sub module:1: Cassette player | | | | | | | |

| | | | | | |
|----|---|---|-----------|----|-----|
| | Description: It consists of knowledge and skills related to the operation, repairing, and maintenance of cassette players. | | | | |
| | Objectives: <ul style="list-style-type: none"> To be familiar with the operation of cassette players To check cassette players in order to detect faults To repair/maintain cassette players | | | | |
| | Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | |
| | | Th(4)+Pr(40)=Tot(44) | Time(hrs) | | |
| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot |
| 1. | <u>Check Audio & Pre Amplifier.</u> <ul style="list-style-type: none"> Receive instruction Select necessary tools. Check speaker Check voltage Check circuit board Check components Check volume & Bass, treble Follow precautions Keep records | <u>Checking Audio & Pre Amplifier.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Play back System ❖ Receiving system ❖ Components & voltage checking ❖ Tools ❖ Precautions to be taken ❖ Keeping records | 1 | 10 | 11 |
| 2. | <u>Troubleshoot Cassette player</u> <ul style="list-style-type: none"> Receive instruction Obtain Cassette player to be troubles hooted Prepare for troubleshoot Cassette player Check Cassette player Detect fault Cassette player Report troubleshooting result Follow precautions Keep records | <u>Troubleshoot Cassette player</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Preparing for troubleshoot Cassette player ❖ Checking Cassette player ❖ Detecting fault Cassette player ❖ Precautions to be taken ❖ Keeping records | 1 | 10 | 11 |
| 3. | <u>Check Mechanism</u> <ul style="list-style-type: none"> Receive instruction Check Motor. Check switch Check Leaf switch. Check head. Check fly wheel, Gear, wheel and other related components of section. Follow precautions Keep records | <u>Checking Mechanism</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Dismounting the Cassette Mechanism ❖ Cassette Play back and recording system ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | 1 | 10 | 11 |
| 4. | <u>Repair/maintain Cassette</u> | <u>Repairing/maintaining Cassette</u> | 1 | 10 | 11 |

| | | | | | | | |
|--|---|---|--|-----------|----|-----|--|
| | <u>player</u> <ul style="list-style-type: none"> • Receive instruction • Prepare for repairing/maintaining Cassette player • Repair/maintain Cassette player • Follow precautions • Keep records | <u>player:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Preparing for repairing/maintaining Cassette player ❖ Repairing/maintaining Cassette player ❖ Precautions to be taken ❖ Keeping records | | | | | |
| | | | Total: | 4 | 40 | 44 | |
| Sub module:2: CD player | | | | | | | |
| Description: It consists of knowledge and skills related to the operation, repairing, and maintenance of CD players. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with the operation of CD players • To check CD players in order to detect faults • To repair/maintain CD players | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | | Th(4)+Pr(36)=Tot(40) | Time(hrs) | | | |
| SN | Tasks/steps | | Related technical knowledge | Th | Pr | Tot | |
| 1. | <ul style="list-style-type: none"> • Receive instruction • Select necessary tools. • Dismount CD player. • Check power supply • Check Audio AMP & Speaker • Check lens • Check mechanical system • Follow precautions • Keep records | | <u>Checking CD player</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Compact disc system ❖ Power supply ❖ Audio & speaker ❖ Lens ❖ Compact disc operating system ❖ Tools ❖ Precautions to be taken ❖ Keeping records | 1 | 9 | 10 | |
| 2. | <u>Troubleshoot/ Repair CD Player:</u> <ul style="list-style-type: none"> • Receive instruction • Troubleshoot CD Player • Repair/maintain CD Player • Follow precautions • Keep records | | <u>Troubleshooting/ Repairing CD Player:</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Troubleshooting CD Player ❖ Repairing / maintaining CD Player ❖ Precautions to be taken ❖ Keeping records | 1 | 9 | 10 | |
| 3. | <u>Replace faulty components of Mechanism</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check Motor. | | <u>Replacing faulty components of Mechanism</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications | 1 | 9 | 10 | |

| | | | | | | | |
|--|---|--|---|-----------|----|-----|--|
| | <ul style="list-style-type: none"> • Check switch • Check Leaf switch. • Check head. • Replace faulty components • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Dismounting the Mechanism ❖ Cassette Play back and recording system ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | | | | | |
| 4. | <u>Replace faulty components of AF amplifier / Pre amp.</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check Speaker. • Check AF Amplifier. • Check proper voltage • Check components • Check Pre Amplifier. • Check and Connection. • Replace faulty components of AF amplifier • Replace faulty components of Pre amp. • Follow precautions • Keep records | <u>Replacing faulty components of AF amplifier / Pre amp</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Dismounting the Cassette Player. ❖ Cassette Play back and recording system ❖ Checking the voltages ❖ Reading diagram ❖ Handling tools ❖ Precautions to be taken ❖ Keeping records | 1 | 9 | 10 | | |
| | | | Total: | 4 | 36 | 40 | |
| Module:5: Television | | | | | | | |
| Description: It consists of knowledge and skills related to the operation, repairing, and maintenance of television. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To repair/maintain televisions B/W TV • To repair/maintain televisions color TV | | | | | | | |
| Sub modules: <ol style="list-style-type: none"> 1. B/W TV 2. Color TV | | | | | | | |
| Sub module:1: Black and White Television | | | | | | | |
| Description: It consists of knowledge and skills related to the operation, repairing, and maintenance of B/W TV. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with the operation of B/W television • To check B/W television in order to detect faults • To repair/maintain B/W television | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | | Th(10)+Pr(40)=Tot(50) | Time(hrs) | | | |
| SN | Tasks/steps | | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Check Tuner</u> <ul style="list-style-type: none"> • Receive instruction • Select necessary tools. | | <u>Checking Tuner</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, | 1 | 4 | 5 | |

| | | | | | | |
|----|---|---|---|---|---|--|
| | <ul style="list-style-type: none"> • Connect RF jack • Check visual response. • Check Tuner • Follow precautions • Keep records | <ul style="list-style-type: none"> • and applications ❖ Tuning system ❖ +B voltage ❖ A.G.C, ❖ IF signal ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | | | | |
| 2. | <u>Check VIF Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Connect Plug. • Check visual response. • Check VIF Voltage • Check IF Signal • Follow precautions • Keep records | <u>Checking VIF Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ TV broadcasting and receiving systems ❖ Function of VIF section ❖ Function of input and out put signals ❖ Components ❖ Handling the tools ❖ Precautions to be taken ◆ Keeping records | 1 | 4 | 5 | |
| 3. | <u>Check Sound IF / AF Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check sound signal. • Check voltages. • Check components. • Check control units. • Follow precautions • Keep records | <u>Checking Sound IF / AF Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Voltages ❖ IP/op signals ❖ Components ❖ Speaker ❖ Tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| 4. | <u>Check Sync Separator</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check input signal • Check out put signals • Check voltages • Check components. • Follow precautions • Keep records | <u>Checking Sync Separator</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Sync signal ❖ Voltages ❖ Components ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| 5. | <u>Check Video Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Connect the plug. • Check visual response. • Check video input and out put signal | <u>Checking Video Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Input and out put signal ❖ Components ❖ Voltages ❖ Handling the tools. | 1 | 4 | 5 | |

| | | | | | | |
|----|---|---|---|---|---|--|
| | <ul style="list-style-type: none"> • Check voltages • Check components • Check operating controls • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Precautions to be taken ❖ Keeping records | | | | |
| 6. | <u>Check Picture Tube</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check physical damaged • Check connection of heater • Check visual signals • Check brightness and contrast signals • Check focus • Follow precautions • Keep records | <u>Checking Picture Tube</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Vacuum tube ❖ Visual signals ❖ Picture tube voltages ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| 7. | <u>Check Vertical Section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tolls. • Connect the plug. • Check vertical deflection coil • Check vertical out put circuit • Check hold controls • Check Voltage • Follow precautions • Keep records | <u>Checking Vertical Section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Vertical deflection systems ❖ Vertical frequency, trace and retrace ❖ Control systems ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| 8. | <u>Check Horizontal Section</u> <ul style="list-style-type: none"> ◆ Receive instruction • Collect necessary tools. • Check high voltage • Check HDC • Check EHT • Check H-Osco, • Check Drive Amp.H-out amp. • Check voltages • Check components. • Follow precautions • Keep records | <u>Checking Horizontal Section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ High voltage ❖ Deflection system ❖ Scanning system ❖ Checking the components ❖ Checking the voltages ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| 9. | <u>Check power supply section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. | <u>Checking power supply section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications | 1 | 4 | 5 | |

| | | | | | | |
|--|---|---|-----------|----|-----|--|
| | <ul style="list-style-type: none"> • Check input voltage • Check regulated output voltages • Check components • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Voltages ❖ Out put regulated current ❖ PSU components ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | | | | |
| 10. | <u>Check SMPS unit.</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check Input and out put voltages • Check switching circuits • Check oscillator • Check sensor circuits • Check components • Follow precautions • Keep records | <u>Checking SMPS unit.</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ I/p and O/O voltages ❖ SMPS system ❖ Circuit diagram ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 4 | 5 | |
| Total: | | | 10 | 40 | 50 | |
| Sub module:2: Color Television | | | | | | |
| Description: It consists of knowledge and skills related to the operation, repairing, and maintenance of color TV. | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To be familiar with the operation of color television • To check color television in order to detect faults • To repair/maintain color television | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | |
| | | Th(11)+Pr(88)=Tot(99) | Time(hrs) | | | |
| SN | Tasks/steps | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Check Chrome section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Connect RF jack and AC cord. • Check RGB Signals. • Check components • Check voltages • Check Chrome oscillator signals. • Follow precautions • Keep records | <u>Checking Chrome section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Chrome signals ❖ Control circuit diagram. ❖ Components ❖ Voltages. ❖ Reading circuits diagrams. ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 2. | <u>Check video Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Connect the plug and RF jack. | <u>Checking video Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ CRT | 1 | 8 | 9 | |

| | | | | | | |
|----|---|---|---|---|---|--|
| | <ul style="list-style-type: none"> • Check RGB voltages. • Check RGB Signals. • Check components. • Check control circuits. • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Video amplifier section. ❖ Components. ❖ Voltages. ❖ Circuit diagram ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | | | | |
| 3. | <u>Check Color Picture Tube</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check physical condition • Check heater connection • Check brightness contrasts and focus control. • Check color snow and color signals. • Follow precautions • Keep records | <u>Checking Color Picture Tube</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Color picture tube. ❖ RGB control system ❖ Heater, cathode, screen and focusing voltages. ❖ Reading circuit diagrams ❖ Handling of tools. ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 4. | <u>Check System control Section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check Vcc in system IC. • Check infrared input section. • Check system oscillator. • Check stand by voltage. • Check Components. • Follow precautions • Keep records | <u>Checking System control Section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Function of sys-con unit. ❖ Microprocessor voltages. ❖ Reading of circuits. ❖ Handling of tools. ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 5. | <u>Check Remote control unit</u> <ul style="list-style-type: none"> • Receive instruction • Check remote control unit. • Check remote sensor circuit. • Check voltages at remote sensor and remain unit. • Check transmission signals. • Follow precautions • Keep records | <u>Checking Remote control unit</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Remote control systems, transmitting and receiving signals from remote control unit. ❖ Checking voltages. ❖ Components. ❖ Reading of circuit diagrams. ❖ Handling of tools. ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 6. | <u>Check Tuner</u> <ul style="list-style-type: none"> • Receive instruction • Check Rottory Tuner • Check Electronics manual | <u>Checking Tuner</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications | 1 | 8 | 9 | |

| | | | | | | |
|-----|---|---|---|---|---|--|
| | <ul style="list-style-type: none"> tuner • Check Electronics Auto Tuner • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Tuning system ❖ +B voltage ❖ A.G.C, ❖ IF signal ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | | | | |
| 7. | <u>Check VIF Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check VIF Voltage • Check Signal • Check Voltages • Follow precautions • Keep records | <u>Checking VIF Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ TV broadcasting and receiving systems ❖ Function of VIF section ❖ Function of input and out put signals ❖ Components ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 8. | <u>Check Sound IF and AF Amplifier</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check sound signal • Check voltages • Check components • Check control units • Follow precautions • Keep records | <u>Checking Sound IF and AF Amplifier</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Voltages ❖ IP/op signals ❖ Components ❖ Speaker ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 9. | <u>Check Sync Separator</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check input signal • Check out put signals • Check voltages • Check components • Follow precautions • Keep records | <u>Checking Sync Separator</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Checking of sync signal ❖ Checking of Voltages ❖ Checking of components ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | |
| 10. | <u>Check Vertical Section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check vertical deflection coil • Check vertical out put circuit • Check hold controls | <u>Checking Vertical Section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ Vertical deflection systems ❖ Vertical frequency, trace and retrace ❖ Control systems | 1 | 8 | 9 | |

| | | | | | | | |
|--|---|---|---|-----------|----|-----|--|
| | <ul style="list-style-type: none"> • Check Voltage • Follow precautions • Keep records | <ul style="list-style-type: none"> ❖ Handling of tools ❖ Precautions to be taken ❖ Keeping records | | | | | |
| 11. | <u>Check Horizontal Section</u> <ul style="list-style-type: none"> • Receive instruction • Collect necessary tools. • Check high voltage • Check HDC • Check EHT • Check H-Osco, • Check Driver Amplifier, • Check H-out put amplifier. • Check voltages. • Check components • Follow precautions • Keep records | <u>Checking Horizontal Section</u> <ul style="list-style-type: none"> ❖ Concept, needs, importance, and applications ❖ High voltage ❖ Deflection system ❖ Scanning system ❖ Checking the components ❖ Checking the voltages ❖ Handling the tools ❖ Precautions to be taken ❖ Keeping records | 1 | 8 | 9 | | |
| | | | Total: | 11 | 88 | 99 | |
| Module:6: Workshop Management | | | | | | | |
| Description: It consists of knowledge and skills related to the management activities necessary for running radio and television repairing workshop in a professional way. | | | | | | | |
| Objectives: <ul style="list-style-type: none"> • To perform Workshop Management • To perform Marketing Management • To perform Service management • To develop professionally | | | | | | | |
| Tasks: To fulfill the objectives the trainees are expected to get proficiency on the following tasks together with their related technical knowledge: | | | | | | | |
| | | | Th(4)+Pr(7)=Tot(11) | Time(hrs) | | | |
| SN | Tasks/steps | | Related technical knowledge | Th | Pr | Tot | |
| 1. | <u>Establish radio and TV repairing workshop</u> <ul style="list-style-type: none"> • Receive instruction • Visit established radio and TV repairing workshop • Get complete information necessary for establishing radio and TV repairing workshop • Analyze service demand • Make plan for establishing radio and TV repairing workshop • Select workshop site • Lay out the workshop • Meet all the necessary legal requirements | | <u>Establishing radio and TV repairing workshop</u> <ul style="list-style-type: none"> • Visiting established radio and TV repairing workshop • Getting complete information necessary for establishing radio and TV repairing workshop • Analyzing service demand • Making plan for establishing radio and TV repairing workshop • Selecting workshop site • Laying out the workshop • Meeting all the necessary legal requirements • Establishing the workshop • Placing hooding board | 0.5 | 1 | 1.5 | |

| | | | | | | |
|----|---|--|-----|---|-----|--|
| | <ul style="list-style-type: none"> Establish the workshop Place hooding board Take precautions Keep records | <ul style="list-style-type: none"> Precautions to be followed Records keeping | | | | |
| 2. | <u>Manage radio and TV repairing workshop</u> <ul style="list-style-type: none"> Receive instruction Obtain a sample radio and TV repairing workshop plan Study the sample radio and TV repairing workshop plan Analyze the sample radio and TV repairing workshop plan Plan for radio and TV repairing workshop activities Organize radio and TV repairing workshop activities Direct radio and TV repairing workshop activities Control radio and TV repairing workshop activities Prepare investment plan for radio and TV repairing workshop Prepare budget for radio and TV repairing workshop Take precautions Keep records | <u>Managing radio and TV repairing workshop</u> <ul style="list-style-type: none"> Obtaining a sample radio and TV repairing workshop plan Studying the sample radio and TV repairing workshop plan Analyzing the sample radio and TV repairing workshop plan Planning for radio and TV repairing workshop activities Organizing radio and TV repairing workshop activities Directing radio and TV repairing workshop activities Controlling radio and TV repairing workshop activities Preparing investment plan for radio and TV repairing workshop Preparing budget for radio and TV repairing workshop Precautions to be followed Records keeping | 0.5 | 1 | 1.5 | |
| 3. | <u>Manage marketing of radio and TV services</u> <ul style="list-style-type: none"> Receive instruction Perform market survey Identify service demands Obtain a sample marketing plan of radio and TV services Study the sample marketing plan of radio and TV services Analyze the sample Plan for marketing of radio | <u>Managing marketing of radio and TV services</u> <ul style="list-style-type: none"> Performing market survey Identifying service demands Obtaining a sample marketing plan of radio and TV services Studying the sample marketing plan of radio and TV services Analyzing the sample Planning for marketing of radio and TV services Organizing marketing of radio and TV services | 0.6 | 1 | 1.6 | |

| | | | | | | |
|----|---|---|-----|---|-----|--|
| | <ul style="list-style-type: none"> and TV services Organize marketing of radio and TV services Direct marketing of radio and TV services Control marketing of radio and TV services Prepare investment plan for marketing of radio and TV services Prepare budget for marketing of radio and TV services Take precautions Keep records | <ul style="list-style-type: none"> Directing marketing of radio and TV services Controlling marketing of radio and TV services Preparing investment plan for marketing of radio and TV services Preparing budget for marketing of radio and TV services Precautions to be followed Records keeping | | | | |
| 4. | <u>Perform radio and TV service marketing</u> <ul style="list-style-type: none"> Receive instruction Specify services too be provided Calculate cost of services too be provided Price the services too be provided Promote the services too be provided through publicity Promote the services too be provided through advertisement Promote the services too be provided through personal selling Promote the services too be provided through sales promotion Provide services Prepare billing formats Take precautions Keep records | <u>Performing radio and TV service marketing</u> <ul style="list-style-type: none"> Specifying services too be provided Calculating cost of services too be provided Pricing the services too be provided Promoting the services too be provided through publicity Promoting the services too be provided through advertisement Promoting the services too be provided through personal selling Promoting the services too be provided through sales promotion Providing services Preparing billing formats Precautions to be followed Records keeping | 0.6 | 1 | 1.6 | |
| 5. | <u>Manage radio and TV services</u> <ul style="list-style-type: none"> Receive instruction Obtain a sample radio and TV services plan Study the sample Analyze the sample Plan for radio and TV services | <u>Managing radio and TV services</u> <ul style="list-style-type: none"> Obtain a sample radio and TV services plan Studying the sample Analyzing the sample Planning for radio and TV services Organizing radio and TV | 0.6 | 1 | 1.6 | |

| | | | | | | |
|----|---|---|-----|---|-----|--|
| | <ul style="list-style-type: none"> Organize radio and TV services Direct radio and TV services Control radio and TV services Take precautions Keep records | <ul style="list-style-type: none"> services Directing radio and TV services Controlling radio and TV services Precautions to be followed Records keeping | | | | |
| 6. | <u>Provide radio and TV services</u> <ul style="list-style-type: none"> Receive instruction Greet the clients Receive clients Sit the clients Show good mannerism Receive the devices to be served Ask for the problems Observe the devices to be served Estimate service charges Inform the client for the estimated service charges Agree with the client about the service charges Perform repairing Make bill Provide bill to the client Receive money Provide the devices to the client Farewell the client Provide services to the satisfaction of the clients take precautions Keep records | <u>Providing radio and TV services</u> <ul style="list-style-type: none"> Greeting the clients Receiving clients Sitting the clients Showing good mannerism Receiving the devices to be served Asking for the problems Observing the devices to be served Estimating service charges Informing the client for the estimated service charges Agreeing with the client about the service charges Performing repairing Making bill Providing bill to the client Receiving money Providing the devices to the client Farewell the client Providing services to the satisfaction of the clients take Precautions to be followed Records keeping | 0.6 | 1 | 1.6 | |
| 7. | <u>Develop professionally</u> <ul style="list-style-type: none"> Receive instruction Be familiar with professional development Apply professional communication skills Consult professional books/manuals/magazines Attend professional meetings Attend professional workshops | <u>Developing professionally</u> <ul style="list-style-type: none"> Being familiar with professional development Applying professional communication skills Consulting professional books/manuals/magazines Attending professional meetings Attending professional workshops Attending professional | 0.6 | 1 | 1.6 | |

| | | | | | | |
|--|--|--|-----------|------------|------------|--|
| | <ul style="list-style-type: none"> • Attend professional seminars • Attend professional trainings • Attend for higher studies • Consult professional senior experts • Listen professional radio programs • Listen/observe/analyze professional TV programs • Browse WWW • Follow precautions • Keep records | <ul style="list-style-type: none"> seminars • Attending professional trainings • Attending for higher studies • Consulting professional senior experts • Listening professional radio programs • Listening/ observing/ analyzing professional TV programs • Browsing WWW • Precautions to be followed • Records keeping | | | | |
| | | Total: | 4 | 7 | 11 | |
| | | Specializes modules total: | 69 | 321 | 390 | |

| Module :7 : Common module | | | | | | |
|----------------------------------|---|--|-----|-------------|------|--|
| | Description: This module consists of skills and knowledge related to applied math, occupational health and safety, HIV/AIDS, first aid, communication, and small business management applicable in the related job performances. | | | | | |
| | Objectives: After its completion the trainees will be able: <ul style="list-style-type: none"> • To carry out simple mathematical calculations related to the occupation • To be familiar with hazards related to this occupation • To apply preventive measures for occupational health and safety • To apply first aid measures • To apply preventive measures for HIV/AIDS • To communicate with others • To apply skills of small business management | | | | | |
| | Sub modules: <ol style="list-style-type: none"> 1. Applied math 2. Occupational health and safety 3. First aid 4. HIV/AIDS 5. Communication 6. Small business management | | | | | |
| Sub module:1:Applied math | | | | | | |
| | Description: It consists of skills and knowledge related to mathematical calculations applicable in the related occupational performances. | | | | | |
| | Objective: After its completion the trainees will be able: <ul style="list-style-type: none"> • To carry out simple mathematical calculations that must be done for the effective performance in the occupational job. | | | | | |
| | Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | | |
| | Th.(4 hrs) + Pr.(16hrs) = Tot.(20 hrs) | | | Time(hrs) | | |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. | |
| 1. | Carry out simple addition applicable in job situation | <u>Addition:</u> ❖ Concept ❖ Simple calculations ❖ Application in the occupation | 0.2 | 0.8 | 1 | |
| 2. | Carry out simple subtraction applicable in job situation | <u>Subtraction:</u> ❖ Concept ❖ Simple calculations ❖ Application in the occupation | 0.2 | 0.8 | 1 | |
| 3. | Carry out simple multiplication applicable in job situation | <u>Multiplication</u> ❖ Concept ❖ Simple calculations ❖ Application in the occupation | 0.2 | 0.8 | 1 | |
| 4. | Carry out simple division applicable in job situation | <u>Division:</u> ❖ Concept ❖ Simple calculations ❖ Application in the occupation | 0.2 | 0.8 | 1 | |

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|-----|--|---|-----|-----|---|
| 5. | Carry out measurements | <u>Measurement:</u> ❖ Concept ❖ Application in the occupation | 0.2 | 0.8 | 1 |
| 6. | Convert units of measurement | <u>Units of measurement:</u> ❖ Concept ❖ Units of measurement ❖ Unit conversion ❖ application | 0.2 | 0.8 | 1 |
| 7. | Convert units of measuring temperature | <u>Units of measuring temperature:</u> ❖ Concept ❖ Units of temperature measurement ❖ Unit conversion ❖ application | 0.2 | 0.8 | 1 |
| 8. | Calculate area | <u>Area:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 9. | Calculate volume | <u>Volume:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 10. | Calculate weight | <u>Weight:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 11. | Calculate percentage | <u>Percentage:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 12. | Calculate ratio and proportions | <u>Ratio and proportions:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 13. | Apply Pythagoras formula | <u>Pythagoras formula:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 14. | Apply unitary method | <u>Unitary method:</u> ❖ Concept ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 15. | Calculate simple interest | <u>Simple interest:</u> | 0.2 | 0.8 | 1 |

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| | | ❖ Concept ❖ Formula ❖ Calculation ❖ Application | | | |
| 16. | Calculate unit cost | <u>Unit cost:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 17. | Calculate per unit income | <u>Per unit income:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 18. | Calculate profit and loss | <u>Profit and loss:</u> ❖ Concept ❖ Formula ❖ Calculation ❖ Application | 0.2 | 0.8 | 1 |
| 19. | Perform billing | <u>Billing:</u> ❖ Concept ❖ Calculation ❖ Bill format ❖ Procedure ❖ Application | 0.2 | 0.8 | 1 |
| 20. | Prepare simple balance sheet | <u>Balance sheet:</u> ❖ Concept ❖ Format ❖ Procedure ❖ Application | 0.2 | 0.8 | 1 |
| | Total: | | 4 | 16 | 20 |
| Sub module: 2: Occupational health and safety | | | | | |
| | Description: It consists of skills and knowledge related to occupational health and safety applicable in the related occupational performances | | | | |
| | Objectives: After its completion the trainees will be able: <ul style="list-style-type: none"> • To be familiar with hazards related to this occupation • To apply preventive measures for occupational health and safety | | | | |
| | Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | |
| | Th.(2 hrs) + Pr.(8hrs) = Tot.(10 hrs) | | | Time(hrs) | |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. |
| Be familiar with hazards related to this occupation | | | | | |
| 1. | Be familiar with accident hazards | <u>Accident hazards:</u> ❖ Concept ❖ Causes ❖ Procedures for managing this hazard | 0.2 | 0.8 | 1 |
| 2. | Be familiar with physical hazards | <u>Physical hazards:</u> ❖ Concept ❖ Causes | 0.2 | 0.8 | 1 |

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|---|--|--|----------|----------|----------|
| | | ❖ Procedures for managing this hazard | | | |
| 3. | Be familiar with chemical hazards | <u>Chemical hazards:</u> ❖ Concept ❖ Causes ❖ Procedures for managing this hazard | 0.2 | 0.8 | 1 |
| 4. | Be familiar with biological hazards | <u>Biological hazards:</u> ❖ Concept ❖ Causes ❖ Procedures for managing this hazard | 0.2 | 0.8 | 1 |
| 5. | Be familiar with ergonomic/psychological / organizational factors: | <u>Ergonomic /psychological / organizational factors:</u> ❖ Concept of : ▪ Ergonomic factors ▪ Psychological factors ▪ organizational factors ❖ Procedures for managing hazards caused by these factors | 0.2 | 0.8 | 1 |
| | Sub total: | | 1 | 4 | 4 |
| Apply preventive measures for occupational health and safety | | | | | |
| 1. | Wear safety wares | <u>Safety wares:</u> ❖ Identification ❖ Needs ❖ Wearing procedures | 0.2 | 0.5 | 0.7 |
| 2. | Inspect workplace before working | <u>Workplace inspection:</u> ❖ Concept ❖ Principle and procedures ❖ Records keeping | 0.2 | 0.5 | 0.7 |
| 3. | Inspect tools/materials/equipment before use | <u>Inspection of tools/materials/equipment:</u> ❖ Concept and identification ❖ Principle and procedures ❖ Records keeping | 0.1 | 0.5 | 0.6 |
| 4. | Be prevented from accident hazards | <u>Prevention of accident hazards:</u> ❖ Concept ❖ Being prevented from accident hazards ❖ Records keeping | 0.1 | 0.5 | 0.6 |
| 5. | Be prevented from physical hazards | <u>Prevention of physical hazards:</u> ❖ Concept ❖ Being prevented from physical hazards ❖ Records keeping | 0.1 | 0.5 | 0.6 |
| 6. | Be prevented from chemical hazards | <u>Prevention of chemical hazards:</u> ❖ Concept | 0.1 | 0.5 | 0.6 |

| | | | | | |
|--|--|--|--|----------|-------------|
| | | <ul style="list-style-type: none"> ❖ Being prevented from chemical hazards ❖ Records keeping | | | |
| 7. | Be prevented from biological hazards | <u>Prevention of biological hazards:</u> <ul style="list-style-type: none"> ❖ Concept ❖ Being prevented from biological hazards ❖ Records keeping | 0.1 | 0.5 | 0.6 |
| 8. | Be prevented from ergonomic/psychological / organizational factors that create problems/hazards. | <u>Prevention of ergonomic/psychological / organizational factors that create problems/hazards:</u> <ul style="list-style-type: none"> ❖ Concept ❖ Being prevented from ergonomic/psychological / organizational factors that create problems/hazards ❖ Records keeping | 0.1 | 0.5 | 0.6 |
| | Sub total: | | 1 | 4 | 5 |
| | Total: | | 2 | 8 | 10 |
| Sub module: 3: First aid | | | | | |
| Description: It consists of skills and knowledge related to first aid measures applicable in the related occupational performances. | | | | | |
| Objective: After its completion the trainees will be able: <ul style="list-style-type: none"> • To apply first aid measures | | | | | |
| Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | | |
| | | | Th.(1 hrs) + Pr.(4hrs) = Tot.(5 hrs) | | Time(hrs) |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. |
| 1. | Carryout simple dressings | <u>Carryout simple dressings:</u> <ul style="list-style-type: none"> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 2. | Apply simple bandages | <u>Apply simple bandages:</u> <ul style="list-style-type: none"> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 3. | Apply first aid for simple wounds | <u>Apply first aid for simple wounds:</u> <ul style="list-style-type: none"> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 4. | Apply first aid for heat | <u>Apply first aid for heat</u> | 0.10 | 0.40 | 0.5 |

| | | | | | |
|-----|--------------------------------------|---|------|------|------|
| | /chemical burns | <u>/chemical burns:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | | | |
| 5. | Apply first aid for injuries/cuts | <u>Apply first aid for injuries/cuts:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 6. | Apply first aid for fracture | <u>Apply first aid for fracture:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 7. | Apply first aid for simple bleeding | <u>Apply first aid for simple bleeding:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.10 | 0.40 | 0.5 |
| 8. | Apply first aid for insect bites | <u>Apply first aid for insect bites:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.05 | 0.20 | 0.25 |
| 9. | Apply first aid for animal bites | <u>Apply first aid for animal bites:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.05 | 0.20 | 0.25 |
| 10. | Apply first aid for frost bite | <u>Apply first aid for frost bite :</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.05 | 0.20 | 0.25 |
| 11. | Apply first aid for simple poisoning | <u>Apply first aid for simple poisoning:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions | 0.05 | 0.20 | 0.25 |

| | | ❖ Recording | | | |
|--|---|--|-------------|----------|----------|
| 12. | Apply first aid for electrical shock | <u>Apply first aid for electrical shock:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.05 | 0.20 | 0.25 |
| 13. | Apply first aid for choking/drowning | <u>Apply first aid for choking/drowning:</u> ❖ Concept ❖ Needs ❖ Procedures ❖ Precautions ❖ Recording | 0.05 | 0.20 | 0.25 |
| Total: | | | 1 | 4 | 5 |
| Sub module:4: HIV/AIDS | | | | | |
| Description: It consists of skills and knowledge related to safety measures to be followed for the prevention of HIV/AIDS including its management. | | | | | |
| Objectives: After its completion the trainees will be able: • To state the concept of HIV/AIDS • To apply safety measures for prevention of HIV/AIDS | | | | | |
| Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | | |
| Th.(1 hrs) + Pr.(4hrs) = Tot.(5 hrs) | | | Time(hrs) | | |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. |
| 1. | State the concept of HIV/AIDS 1. Define HIV 2. Enlist modes of transmission of HIV 3. Enlist signs and symptoms of HIV infected person 4. Enlist stages of HIV 5. Define AIDS 6. Enlist signs and symptoms of AIDS 7. Enlist current status of global HIV/AIDS 8. Enlist difference between HIV/AIDS | State the concept of HIV/AIDS: HIV: ❖ Definition of HIV: ❖ Modes of transmission of HIV ❖ Signs and symptoms of HIV infected person ❖ Stages of HIV AIDS: ❖ Definition of AIDS ❖ Signs and symptoms of AIDS ❖ Current status of global HIV/AIDS ❖ Difference between HIV and AIDS | 0.5 | 2 | 2.5 |
| 2. | Apply safety measures for prevention of HIV/AIDS: 1. Keep touch with single partner for sexual intercourse | <u>Apply safety measures for prevention of HIV/AIDS:</u> ❖ Keeping touch with single partner for sexual intercourse | 0.5 | 2 | 2.5 |

| | | | | | |
|---|---|--|---|-----|-------------|
| | <ol style="list-style-type: none"> 2. Ensure safe intercourse 3. Use condom carefully and consistently during each act of sexual intercourse incase of other than single sex partner 4. Keep away from sharing syringes, needles and other skin piercing instrument with HIV infected people 5. Keep away from sharing toothbrushes, blade razors or other instruments that could become contaminated from blood 6. Keep away from handling clothes or cloths that are visibly contaminated with blood 7. Follow positive health behavior 8. Get blood be tested to ensure HIV negative/positive | <ul style="list-style-type: none"> ❖ Ensuring safe intercourse ❖ Using condom carefully and consistently during each act of sexual intercourse incase of other than single sex partner ❖ Keeping away from sharing syringes, needles and other skin piercing instrument with HIV infected people ❖ Keeping away from sharing toothbrushes, blade razors or other instruments that could become contaminated from blood ❖ Keeping away from handling clothes or cloths that are visibly contaminated with blood ❖ Positive health behavior ❖ Getting blood be tested to ensure HIV negative/positive | | | |
| | Total: | | 1 | 4 | 5 |
| Sub module: 5 : Communication | | | | | |
| Description: It consists of the skills and knowledge related to communication in the related occupation. Each task consists of its steps, related technical knowledge and hour distribution. | | | | | |
| Objectives: After its completion the trainees will be able: | | | | | |
| | <ul style="list-style-type: none"> • To handle telephone calls • To handle fax • To handle mail • To write letters • To write memos / tips / notes / notice • To perform internal communication • To perform external communication • To perform oral communication • To perform written communication | <ul style="list-style-type: none"> • To communicate with donors To communicate with financial institutes • To link with media • To disseminate information • Write job application • Prepare Resume. • Communicate with senior. • Communicate with juniors. • Deal with customers • Request / purchase tool, supplies, materials and equipment. • Fill up leave requisition form. | | | |
| Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | | |
| | | | Th.(2 hrs) + Pr.(8hrs) = Tot.(10 hrs) | | Time(hrs) |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. |
| 1. | Handle telephone calls | <u>Handling telephone calls:</u> <ul style="list-style-type: none"> ❖ Concept, need, and | 0.1 | 0.4 | 0.5 |

| | | | | | |
|----|-------------------------------------|--|-----|-----|-----|
| | | <p>importance</p> <ul style="list-style-type: none"> ❖ Operating principles and procedures ❖ Care and maintenance ❖ Safety precautions to be taken ❖ Keeping activity records | | | |
| 2. | Handle fax | <p><u>Handling fax:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Operating principles and procedures ❖ Care and maintenance ❖ Safety precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 3. | Handle mail | <p><u>Handling mail:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Operating principles and procedures ❖ Care and maintenance ❖ Safety precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 4. | Write letters | <p><u>Writing letters:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Types of letter ❖ Component parts of each type of letter ❖ Format of each type of letter ❖ Writing letters ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 5. | Write memos / tips / notes / notice | <p><u>Writing memos / tips / notes / notice :</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts of memos / tips / notes / notice ❖ Format of memos / tips / notes / notice ❖ Writing memos / tips / notes / notice ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 6. | Prepare simple report | <p><u>Preparing simple report:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance | 0.1 | 0.4 | 0.5 |

| | | | | | |
|-----|---|--|-----|-----|-----|
| | | <ul style="list-style-type: none"> ❖ Component parts of a report ❖ Format of a report ❖ Writing a report ❖ Precautions to be taken ❖ Keeping activity records | | | |
| 7. | Prepare simple proposal | <u>Preparing simple proposal:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts of a proposal ❖ Format of a proposal ❖ Writing a proposal ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 8. | Perform internal/ external communication | <u>Performing internal/ external communication:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Performing internal/ external communication ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 9. | Perform horizontal/vertical communication | <u>Performing horizontal/vertical communication:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Performing horizontal/vertical communication ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 10. | Perform oral/ written communication | <u>Performing oral/ written communication:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Performing oral/ written communication ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 11. | Communicate with financial institutes | <u>Communicating with financial institutes:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and | 0.1 | 0.4 | 0.5 |

| | | | | | |
|-----|---------------------------|---|-----|-----|-----|
| | | <ul style="list-style-type: none"> application ❖ Communicating with financial institutes ❖ Precautions to be taken ❖ Keeping activity records | | | |
| 12. | Link with media | <u>Linking with media:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Linking with media ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 13. | Disseminate information | <u>Disseminating information:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Disseminating information ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 14. | Write job application | <u>Writing job application:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts of job application ❖ Format of job application ❖ Writing job applications ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 15. | Prepare resume | <u>Preparing resume:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts of a resume ❖ Format of a resume ❖ Writing resume ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 16. | Communicate with senior. | <u>Communicating with senior:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Communicating with senior ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 17. | Communicate with juniors. | <u>Communicating with juniors:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance | 0.1 | 0.4 | 0.5 |

| | | | | | | |
|--|---|--|----------|-------------|-----------|--|
| | | <ul style="list-style-type: none"> ❖ Principles, procedures, and application ❖ Precautions to be taken ❖ Keeping activity records | | | | |
| 18. | Deal with customers/stake holders | <u>Dealing with customers/stake holders:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Communicating with juniors ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 | |
| 19. | Request / purchase tool, supplies, materials and equipment. | <u>Requesting / purchasing tool, supplies, materials and equipment:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Requesting / purchasing tool, supplies, materials and equipment ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 | |
| 20. | Fill up leave requisition form | <u>Filling up leave requisition form:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Principles, procedures, and application ❖ Filling up leave requisition form ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 | |
| | | Total: | 2 | 8 | 10 | |
| Sub module: 6 : Small business management | | | | | | |
| | Description: It consists of the skills and knowledge related to small business management in the related occupation. Each task consists of its steps, related technical knowledge and hour distribution. | | | | | |
| | Objectives: After its completion the trainees will be able: <ul style="list-style-type: none"> • To be familiar with entrepreneurship development • To prepare a business plan | | | | | |
| | Tasks: To fulfill the objective the trainees are expected to get proficiency on the following tasks/skills/steps together with their related technical knowledge: | | | | | |
| | Th.(4 hrs) + Pr.(16 hrs) = Tot.(20 hrs) | | | Time(hrs) | | |
| SN | Tasks or skills/ steps | Related technical knowledge | Th. | Pr. | Tot. | |
| | <u>Entrepreneurship development:</u> | <u>Entrepreneurship development:</u> | | | | |

| | | | | | |
|----|---|--|-----|-----|-----|
| 1. | Be familiar with business / entrepreneurship | <u>Business / entrepreneurship:</u> ❖ Concept, definitions, need, and importance ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 2. | Develop qualities of a successful entrepreneur | <u>Qualities of a successful entrepreneur:</u> ❖ Concept and needs ❖ Qualities of a successful entrepreneur ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 3. | Follow professional ethics | <u>Professional ethics:</u> ❖ Concept, need, and importance ❖ Professional ethics ❖ Interpretation ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 4. | Analyze prevailing rules / regulations/ laws /acts related to the profession | <u>Prevailing rules / regulations/ laws /acts related to the profession:</u> ❖ Concept, need, and importance ❖ Prevailing rules / regulations/ laws /acts related to the profession ❖ Interpretation ❖ Precautions to be taken ❖ Keeping activity records | 0.1 | 0.4 | 0.5 |
| 5. | Develop skills of good governance | <u>Good governance:</u> ❖ Concept, need, and importance ❖ Principles and procedures of good governance ❖ Precautions to be taken ❖ Keeping activity re | 0.1 | 0.4 | 0.5 |
| 6. | Be familiar with entrepreneurship development/ factors affecting the growth of entrepreneurship | <u>Entrepreneurship development/ factors affecting the growth of entrepreneurship:</u> ❖ Concept, need, and importance ❖ Entrepreneurship development ❖ Factors affecting the growth of entrepreneurship ❖ Precautions to be taken ❖ Keeping records | 0.1 | 0.4 | 0.5 |
| 7. | Develop an entrepreneurship competency development [ECD] program | <u>Entrepreneurship competency development [ECD] program:</u> ❖ Concept, need, and importance | 0.1 | 0.4 | 0.5 |

| | | | | | |
|-----|---|--|----------|----------|----------|
| | | <ul style="list-style-type: none"> ❖ Entrepreneurship competency development [ECD] ❖ ECD program development ❖ Precautions to be taken ❖ Keeping records | | | |
| 8. | <p>Be familiar with identification / selection/appraising/gaining instructional a support of a project</p> <ul style="list-style-type: none"> • Be familiar with identification of a project • Be familiar with selection of a project • Be familiar with appraising of a project • Be familiar with gaining instructional a support of a project | <p><u>Identification / selection/appraising/gaining instructional a support of a project:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Identification of a project ❖ Selection of a project ❖ Appraising of a project ❖ Gaining instructional a support of a project ❖ Precautions to be taken ❖ Keeping records | 0.1 | 0.4 | 0.5 |
| 9. | <p>Be familiar with the preparation of a comprehensive business plan for starting / acquiring /running a business</p> | <p><u>Be familiar with the preparation of a comprehensive business plan for starting / acquiring /running a business:</u></p> <ul style="list-style-type: none"> ❖ Preparation of a comprehensive business plan for starting a business ❖ Preparation of a comprehensive business plan for acquiring a business ❖ Preparation of a comprehensive business plan for running a business ❖ Precautions to be taken ❖ Keeping records | 0.1 | 0.4 | 0.5 |
| 10. | <p>Be familiar with marketing of products</p> | <p><u>Be familiar with marketing of products:</u></p> <ul style="list-style-type: none"> ❖ concept of product, price, place, promotion ❖ marketing of products ❖ Precautions to be taken ❖ Keeping records | 0.1 | 0.4 | 0.5 |
| | | Sub total: | 1 | 4 | 5 |
| | Business plan: | Business plan: | | | |
| 11. | <p>Collect related information / data</p> | <p><u>Collecting related information / data:</u></p> <ul style="list-style-type: none"> ❖ Concept, need, and importance of data and information | 0.4 | 1.6 | 2 |

| | | | | | |
|-----|-------------------------|---|-----|-----|---|
| | | <ul style="list-style-type: none"> ❖ Difference between data and information ❖ Principles and procedures for collecting related information / data ❖ Collecting related information / data ❖ Precautions to be taken ❖ Keeping records | | | |
| 12. | Prepare production plan | <u>Preparing production plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts ❖ Format ❖ Principles and procedures ❖ Precautions to be taken ❖ Keeping records | 0.4 | 1.6 | 2 |
| 13. | Prepare cost plan | <u>Preparing cost plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts ❖ Format ❖ Principles and procedures ❖ Precautions to be taken ❖ Keeping records | 0.4 | 1.6 | 2 |
| 14. | Prepare financial plan | <u>Preparing financial plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts ❖ Format ❖ Principles and procedures ❖ Precautions to be taken ❖ Keeping records | 0.4 | 1.6 | 2 |
| 15. | Prepare marketing plan | <u>Preparing marketing plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts ❖ Format ❖ Principles and procedures ❖ Precautions to be taken ❖ Keeping records | 0.4 | 1.6 | 2 |
| 16. | Prepare a business plan | <u>Preparing a business plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and importance ❖ Component parts ❖ Format ❖ Principles and procedures ❖ Precautions to be taken ❖ Keeping records | 0.6 | 2.4 | 3 |
| 17. | Appraise business plan | <u>Appraising business plan:</u> <ul style="list-style-type: none"> ❖ Concept, need, and | 0.4 | 1.6 | 2 |

| | | | | | |
|---|---|---|-----------|------------|------------|
| | | importance | | | |
| | | ❖ Principles and procedures | | | |
| | | ❖ Precautions to be taken | | | |
| | | ❖ Keeping records | | | |
| | | Sub total: | 3 | 12 | 15 |
| | | Total: | 4 | 16 | 20 |
| | | Common module total: | 14 | 56 | 70 |
| | | All total: | 83 | 377 | 460 |
| List of tools, materials and equipment | | | | | |
| | <ul style="list-style-type: none"> • Multi meter • Line • Resistor • Load • Components • Tools • Power supply • Circuit diagrams • Audio circuit board • Speaker • Circuit board of IF & detector • Oscilloscope • Signal generator • Converter & L-C Tuned | <ul style="list-style-type: none"> • Radio receiver • Volt guard /Volt guard set • Digital IC • Circuit Board • Mechanism set • Audio & Pre AMP circuit board • Cassette Mechanism • Audio CD player • Audio CD • Tuners • TV Set • Cable line • CTV /CTV set • Remote control unit | | | |
| Reading materials | | | | | |
| | <ul style="list-style-type: none"> • Instructor selected textbooks/ reference books / manuals/ journals and articles available in the marker | <ul style="list-style-type: none"> • Instructor prepared books, handouts, notes and manuals | | | |
| Facilities | | | | | |
| | <ul style="list-style-type: none"> • Well equipped enough class/ office rooms • A / V room • Lab/workshop • Transportation facilities/ Vehicle /Library | <ul style="list-style-type: none"> • OHP/computers with CD ROM attachment / pictures • Multimedia presentation set /slide presenter • Hostel/canteen /drinking water/ electricity | | | |